

City of Wenatchee Public Works

CAD & GIS Requirements for Record Drawing Submittals

General Requirements:

- Record drawings shall be accurate, clean, clear and easily readable. In congested areas, additional blow-up details will be required for readability.
- The record drawings must be prepared and certified by a Professional Engineer and/or Professional Land Surveyor currently licensed in the State of Washington. Their stamp and signature must be on the cover sheet.
- Record Drawing submittal must include all sheets listed in approved construction plan sheet index.
- The Record Drawing Index is on first page of the drawing set.
- The Record Drawing numbers are organized in sequential order on each sheet.
- Record drawings shall include the “As-Built” certification block.
- The CAD file and the plans must match.
- Provide flow direction arrows on utility systems and manhole numbers when applicable.
- Items or sheets not built shall be put on a “Not Built” (NBLT) layer and crossed out. The NBLT layer shall be included in the composite DWG file.
- A North Arrow on each sheet.
- Scale bar on each sheet (and any scaled detail).

Electronic Submittals:

- **CAD:** The City of Wenatchee is currently using AutoCAD Civil 3D 2018
 - Xref file (External reference files) = these are other files that are linked to the main drawing such as other drawings and images.
 - *.ctb files = this is the color settings file. This defines the layers and line weights on the drawings PDF file of the complete drawing.
 - No reference files and no locked or frozen layers will be accepted.
Tip: when “binding” reference files into the current drawing use the INSERT option, then EXPLODE the block reference that was created during the bind.
- **GIS:** The City of Wenatchee is currently using Esri ArcGIS 10.6 and ArcGIS Pro 2.3
 - Single geodatabase containing separate feature classes per feature type or layer (see Appendix B for Feature Specific layers) with fully populated attribute table.
 - Fully populated FGDC or Esri metadata is not required, but helpful to include in the geodatabase.

Layout Management:

- All elements should be created in Model space. GIS software does not draw features created in Paper Space.
- Geo-referenced utility linework shall be drawn and classified to ensure smooth export of linework into GIS.
- For Development Projects Only: CAD drawings MUST USE City of Wenatchee Public Works CAD template.

CAD Drafting Guidelines:

- Layering Designations in CAD Files must be separated and delineated for storm facilities (separate layers for pipes, catch basins and other structures), water utilities, sanitary sewer utilities, buildings, pavement edges, sidewalks, curb ramps, water bodies, wetlands, poles, trees, property lines, ROW boundaries, luminaires, signs, pavement markings, traffic signals, barriers, handrails, guard rails, landscape areas and fences. See Specific Feature Requirements (Appendix B).

For Capital Improvement Projects (CIP): one DWG per discipline (water utilities, pavement, electrical, etc.) with classified layers.

For Development Projects: single composite DWG.

- All lines should be snapped and closed.
- Annotation should be defined by annotation layers.
- Drawings shall be purged of empty, unused, or non-essential drawing data.
- Drawings should be in full scale format (1ft =1ft).
- Drawing shall be in model space.

GIS Digitization Guidelines:

- All lines should be segmented at appurtenances and natural breaks.
- All endpoints should be snapped to other continuous lines.
- All endpoints should be snapped, and in typical alignment (typ. 90 or 45 degrees), to surveyed point features.
- Multipart polygons are allowed, if they cannot reasonably be separated without changing the intent of the design.
- All storm and sewer lines must be drawn to show Flow Direction.
- All data projected into the approved Datum and Projection.
- Recommend using Esri Data Reviewer or other Data Quality tools to ensure features meet common topology rules.
- All GIS features, dimensions and locations must match CAD drawing(s) and PDF(s).

Datum Requirements:

- The datum will be recorded on the cover sheet and shall read exactly as follows:
 - Horizontal datum: Washington State Plane North, NAD 83 (2011)
 - Vertical datum: NAVD 88 US Foot

Datum \ Survey Info:

- Horizontally referenced to WA State Plane Coordinates, North Zone, NAD 83 (GCS 4601) in US Survey Feet Vertically referenced to NAVD 1988, US survey feet.
- Provide eastings and northings for existing and new monuments and benchmarks in the coordinate system referenced, as an embedded or separate table.
- AutoCAD drawings are to be drafted utilizing this datum for insertion into the City's GIS system. In addition, tie the project to two (2) City of Wenatchee horizontal control monuments and two (2) City of Wenatchee vertical control datum benchmarks.

For Horizontal and Vertical Control Survey information, please contact the Engineering Division at (509) 888-3200 or come to the Public Services Center (PSC) 1350 McKittrick Street, Wenatchee, WA 98001.